DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1 to 2, 13 to 14, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Okada (JP '575)* in view of *Hinde ('794)*.

Concerning independent claims 1 and 13, *Okada (JP '575)* discloses a method and apparatus for audio reproduction, comprising:

"a means of calculation for partitioning documents into groups of documents possessing at least one similar audio characteristic" – sound information may be divided into several groups beforehand ¶[0028]; for ISF insect pictures, a virtual space contains sounds, and the sources are sound data arranged to mimic "insects in the meadow" and "birds in the forest" ¶[0026]; broadly, sound data of "insects in the meadow" and "birds in the forest" are "audio documents", where insects possess a first similar audio characteristic and birds possess a second similar audio characteristic;

"a means of determination of several audio document representing each group" – when a user is outside a certain group, the representative sound of the group can be

heard as the sound image at the center of gravity of the group ¶[0028]; thus, there is a representative sound of the group for when the user is outside the group;

"a means of calculation of positioning data associated with each document in a space, the data being determined by at least one characteristic specific to the document, a positioning datum also being assigned to the position of the user within the space" – sound information belonging to a certain group is positioned in a range up to a certain position in the virtual sound space ¶[0028]; the user can walk in the virtual sound space to get the information ¶[0026]; four parameters ("at least one characteristic") pertain to the sound image positioning, including volume, panning, reverberation, and filtering ¶[0049] – ¶[0055]; a position of the user is changed by movement of a mouse interface part ¶[0059];

"a means of selection of each document representing a group, the selected document or documents having a position situated at a distance less than a determined distance with respect to the position of the user in the space" – only when a user enters a group can a sound be generated with individual sounds in the group having respective sound image position; when a user approaches from outside the group, the user can hear a chorus of chirps from the cicadas; then, once the user enters the group, the user can hear individual cicadas chirping ¶[0028] – ¶[0029]; volume is inversely proportional to the square of the distance between the user and the source object ¶[0050]; when the user is inside the group, this corresponds to "having a position situated at a distance less than a determined distance with respect to the user in the space";

"a means of reproduction of [several] identifiers of at least one document representing a group[, the identifiers being reproduced loopwise when this group is selected]" – a virtual sound field and a visualizing means may be combined to improve the user's on-site sensation, and to facilitate his making an appropriate selection of the desired sound; by using a plurality of visualizing means at the same time, it is possible to move toward the desired sound source, so as to narrow down the desired sound source ¶[0038] – ¶[0039]: Figures 6, 7, and 10; when the user is outside a group, the representative sound of the group can be heard as the sound image at the center of gravity of the group; the representative sound of the group may be a single sound or all of the sounds of the entire group; once a user enters the group, the user can hear the individual cicadas chirping at their respective sites ¶[0028] - ¶[0029]; thus, "reproduction of several identifiers" happens at least when a user enters a group ("a position situated a distance less than a determined distance with respect to the user in the space").

Concerning independent claims 1 and 13, the only element omitted by *Okada (JP '575)* is that "the identifiers are reproduced loopwise when this group is selected". *Okada (JP '575)* does disclose that, by means of the left/right buttons on the mouse, the user can change the direction in the sound space. ¶[0058] Left/right positioning divides the sound image into 32 directions spanning 360°. ¶[0050] Thus, *Okada (JP '575)* suggests a user can change a direction in sound space in a circular manner. Correspondingly, *Hinde ('794)* teaches that an audio field can be arranged on a three-dimensional spherical surface with an azimuth angle X°, supporting azimuth rotation of the audio field, thereby providing a way for the user to explore the audio field by

commanding a particular rotation of the audio field. (Column 6, Lines 1 to 36: Figure 1) Segments can be muted and un-muted independently of each other. (Column 18, Lines 7 to 29: Figure 13) A particular sound source can be selected by rotation/displacement of the audio field to bring the sound source to be selected to a particular selection direction with respect to the user, permitting the user to control the azimuth angle of the audio-field reference vector. (Column 24, Lines 15 to 57) Thus, a user has a capability to reproduce the identifiers "loopwise" after entering a group because rotation through an azimuth angle by more than 360^{o} brings the audio field back to the starting position. (Applicants' Specification does not clearly disclose that the individual identifiers are reproduced automatically when a group is selected, so that loopwise reproduction can be performed by user selection. *Cf.* Specification, Page 9, Lines 30 to 31.) An objective is to provide an audio user interface facilitating selection of resources. (Column 3, Lines 30 to 32) It would have been obvious to one having ordinary skill in the art to reproduce documents within a group loopwise as taught by *Hinde ('794)* in a method and apparatus for retrieval of sound sources of *Okada (JP '575)* for a purpose of providing an audio user interface facilitating selection of resources.

Concerning claims 2 and 14, *Okada (JP '575)* discloses positioning sound sources in a virtual space, where a user can walk in the virtual space to get sound information, but omits introducing commands for navigating group wise, so that each command activates a reproduction of at least one identifier representing the graphically emphasized group. However, *Hinde ('794)* teaches an audio user interface, where one embodiment involves organizing service sound sources at a number of discrete heights,

corresponding to four "floors". Each floor contains sound sources associated with services of the same type with different floors being associated with different service types. A user can command step changes in height correspond to moving from floor to floor. Advisory sound sources 60, 61 provide a summary of the services available above and below a current focus zone. (Column 12, Lines 38 to 54: Figure 8) Thus, a user command to move from floor to floor is equivalent to "introducing commands for navigating group wise", which reproduces the service sound sources on that floor. An objective is to provide an audio field associated with a computer game or artificial environment having varying degrees of user immersion to facilitate user selection of resources. (Column 3, Lines 16 to 32) It would have been obvious to one having ordinary skill in the art to provide group wise activation of commands for reproduction of sound sources as taught by *Hinde ('794)* in a method and apparatus for virtual sound field visualization of *Okada (JP '575)* for a purpose of providing an artificial environment to facilitate user selection of resources.

Concerning claim 19, *Okada (JP '575)* discloses a representative sound of a group can be heard as the sound image position at the center of gravity of the group ¶[0028]; a center of gravity is "close to an average of the values" of the position of the elements of the group; the volume is inversely proportional to the square of the distance between the user and the source object ¶[0050]; thus, implicitly, the volume, which is one of the "audio characteristics", is an average value reflecting the average position of a representative sound of the group at the center of gravity.

3. Claims 3 to 9, 15 to 18, 20, and 23 to 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Okada (JP '575)* in view of *Hinde ('794)* as applied to claims 1 and 13 above, and further in view of *Foote et al*.

Concerning claims 3 and 15, *Okada (JP '575)* discloses that the sounds are reproduced as the user moves through the sound field, but does not expressly disclose the sounds being reproduced in a predetermined order. However, *Foote et al*. teaches a method and system for retrieving and sequencing music by rhythmic similarity, where songs are sequenced to maximize the similarity between adjacent files. The selected songs are ordered so that the sum of inter-song distances is a minimum. ¶[0095] – ¶[0100] The objective is to minimize the beat spectral difference between successive songs so that song transitions are not jarring. ¶[0098] Music is classified into genres, and a user may search for music with a similar rhythmic structure to reproduce. ¶[0104] – ¶[0107] It would have been obvious to one having ordinary skill in the art to provide a command to activate reproduction of audio documents in a predetermined order as taught by *Foote et al*. in a method and apparatus for virtual sound field visualization of *Okada (JP '575)* for a purpose of minimizing jarring transitions between songs.

Concerning claims 4 to 6 and 16 to 17, *Foote et al*. teaches classification of music into genres by beat spectra of music, representing the musical work by Fourier coefficients in a vector space. ¶[0105] The Fourier coefficients are a "number of audio parameters", and the vector space has a number of dimensions equal to the number of audio parameters, or coefficients. A determination of whether a musical work belongs to a class or genre of blues, classical, dance, jazz, pop, rock, or rap depends upon a

distance measure. ¶[0099] – ¶[0100]; ¶[0105] – ¶[0107] *Okada (JP '575)* discloses dividing sound information into groups beforehand, where a representative sound of a group is heard as the sound image position at the center of gravity of the group. ¶[0028] A center of gravity is equivalent to the "equibarycentre of the points of the documents of the group".

Concerning claims 7, 9, 18, and 20, *Foote et al*. teaches ordering selected songs so that the sum of the inter-song distances is a minimum. ¶[0100] A template of works with a particular rhythm and sequence is created, so that an algorithm can automatically sequence a larger collection of music according to the similarity template. Fast songs are sequenced at the beginning, moderate songs in the middle, and progressively slower songs at the end as time passes. ¶[0103]

Concerning claim 8, *Foote et al*. teaches classifying source audio into genre of music by coefficients in a vector space. ¶[0105] Thus, source audio is classified, or partitioned, into genres by average characteristics of the beat spectra.

Concerning claims 23 and 25, *Foote et al*. teaches that excerpts of a soundtrack are represented by a duration of multiple ten-second samples of songs; each song can be represented by three ten-second excerpts ¶[0091] - ¶[0092]; thus, "the determined period" is ten-seconds, and number of samples is three; however, "notice" is taken that it is matter of design choice as to "introducing" a given time-period for a duration of each sample or the number of samples that represent each song; thus, "introducing of the determined period" is a matter of "design choice" by simply varying a default value of a sample to five seconds or twenty seconds.

Concerning claims 24 and 26, *Foote et al*. teaches that music files are sequenced in an arrangement by rhythmic similarity according to an distance matrix so that the sum of inter-song distances is minimized ¶[0097] - ¶[0100]; *Okada (JP '575)* discloses dividing sound information into groups beforehand, where a representative sound of a group is heard as the sound image position at the center of gravity of the group ¶[0028]; a center of gravity is equivalent to the "equibarycentre of the points of the documents of the group"; thus, a combination of *Foote et al*. and *Okada (JP '575)* would suggest sequencing songs that are arranged in a space by a distance metric commencing at a center of gravity of a space.

Response to Arguments

4. Applicants' arguments 14 July 2008 have been considered but are moot in view of the new grounds of rejection, necessitated by amendment.

Applicants' argument directed to the rejection of independent claims 1 and 13 under 35 U.S.C. §102(b) as being anticipated by *Okada (JP '575)* is moot. Applicants' argument is that *Okada (JP '575)* fails to disclose the limitations of "reproduction of several identifiers of a document representing a group" and "the identifiers being reproduced loopwise when this group is selected." However, these arguments are moot pursuant to the new grounds of rejection for independent claims 1 and 13 as being obvious under 35 U.S.C. §103(a) over *Okada (JP '575)* in view *Hinde ('794)*.

Applicants' arguments filed 14 July 2008 have been fully considered but they are not persuasive.

Applicants present an argument directed to the rejection of claims 2 and 14 as being obvious *Okada (JP '575)* in view of *Hinde ('794)*. Applicants say that *Hinde ('794)* may disclose that several different services are grouped in floors of a virtual building, but there is no sense to group several sounds having a similar characteristic. Applicants maintain that the grouping of services, and their associated sounds, is based on the type of services, not based on similar audio characteristics. This is not persuasive.

Basically, it is contended that Applicants are considering the references individually without addressing what the combination of *Okada (JP '575)* and *Hinde ('794)* would suggest to one having ordinary skill in the art. One cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Here, it is *Okada (JP '575)* that discloses the grouping of similar sounds. Thus, one group of sounds could be birds in a forest and another group of sounds could be insects in a meadow. ¶[0026] A group of cicadas is formed for insects, and either a chorus of chirps from the cicadas can be heard from outside the group, or individual chirping cicadas can be heard once the user enters the group. ¶[0029] Thus, the fact that *Hinde ('794)* discloses grouping of sounds by services but does not group sounds by similar audio characteristics does not show that the feature is unobvious insofar as *Okada (JP '575)* discloses that feature.

Therefore, the rejections of claims 1 to 2, 13 to 14, and 19 under 35 U.S.C. §103(a) as being unpatentable over *Okada (JP '575)* in view of *Hinde ('794)*, and of claims 3 to 9, 15 to 18, 20, and 23 to 26 under 35 U.S.C. §103(a) as being unpatentable over *Okada (JP '575)* in view of *Hinde ('794)*, and further in view of *Foote et al.*, are proper.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to Applicants' disclosure.

White et al., Hammett et al., Kaplan et al., Crow, Richard et al., Wilf, and Chen et al. disclose related art.

6. Applicants' amendment necessitated the new grounds of rejection presented in this Office Action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Martin Lerner whose telephone number is (571) 272-7608. The examiner can normally be reached on 8:30 AM to 6:00 PM Monday to Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David R. Hudspeth can be reached on (571) 272-7843. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Martin Lerner/
Primary Examiner, Art Unit 2626
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